

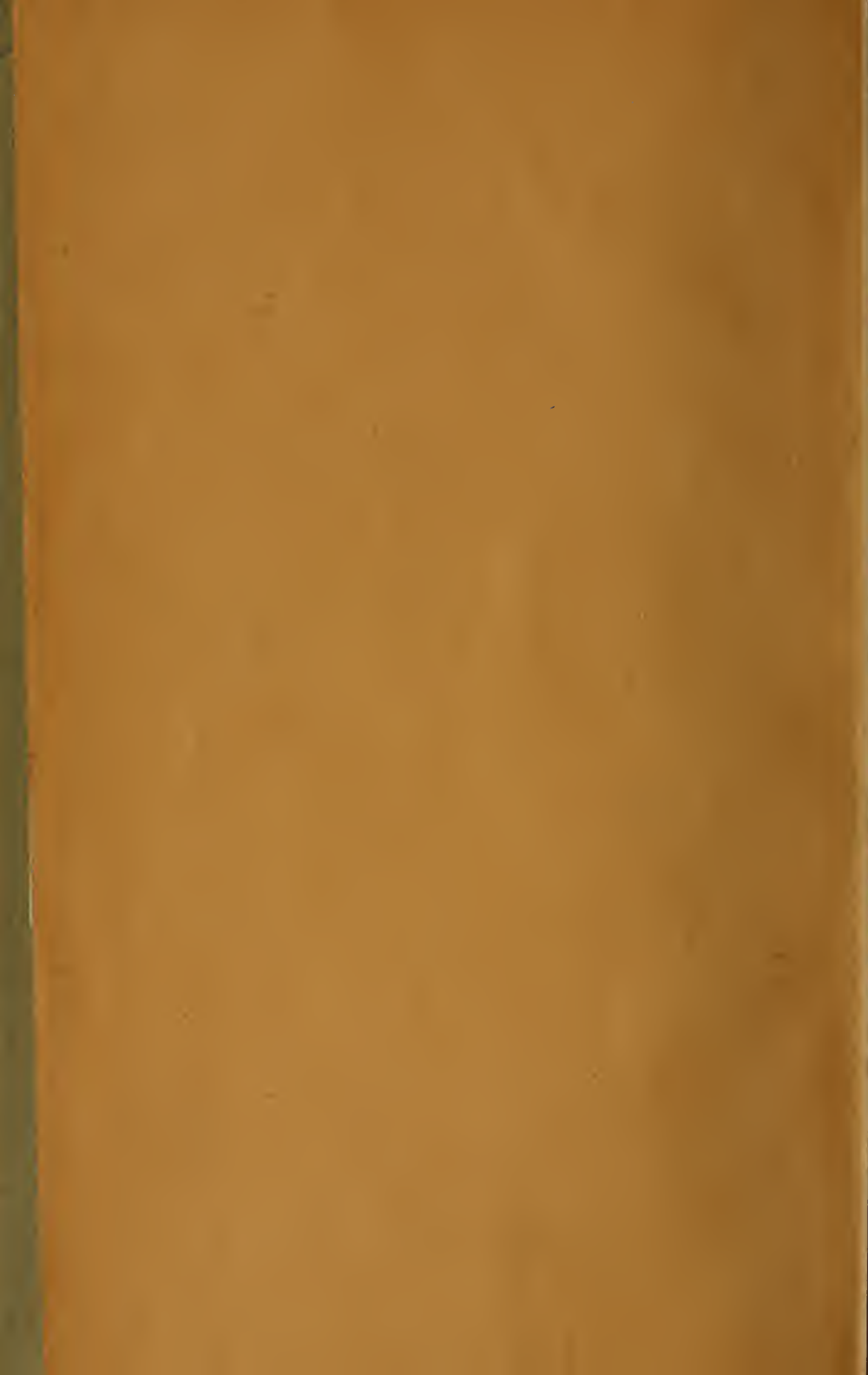
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U. S. DEPARTMENT OF LABOR

JAMES J. DAVIS, Secretary

CHILDREN'S BUREAU

JULIA C. LATHROP, Chief

INFANT MORTALITY IN PITTSBURGH

AN ANALYSIS OF RECORDS FOR 1920
WITH SIX CHARTS

By

GLENN STEELE

INFANT MORTALITY SERIES No. 12

Bureau Publication No. 86



WASHINGTON
GOVERNMENT PRINTING OFFICE
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UNIVERSITY OF PITTSBURGH
JAN 10
1921

LETTER OF TRANSMITTAL.

UNITED STATES DEPARTMENT OF LABOR,
CHILDREN'S BUREAU,
Washington, June 20, 1921.

SIR: I transmit herewith a report on infant mortality in Pittsburgh, which is an analysis of official records for 1920. The material was gathered and the report written by Miss Glenn Steele.

Respectfully submitted.

JULIA C. LATHROP, *Chief.*

Hon. JAMES J. DAVIS,
Secretary of Labor.

INFANT MORTALITY IN PITTSBURGH.

COMPARISON WITH OTHER LARGE CITIES.

Pittsburgh lost more babies in 1920 in proportion to its births than any other of the large American cities for which reliable records are available.

Its wastage of young life for the year exceeded that of 17 cities of more than 250,000 population in the birth registration area.

The measurement of this loss by an infant mortality rate—the number of deaths of infants under 1 year of age per 1,000 born alive—shows that for every 1,000 babies born in Pittsburgh in 1920, 110 failed to survive throughout the year. Approximately, this means a loss during infancy of 1 life out of every 9. For the same year, Boston had 1 infant death to 10 births; Philadelphia, 1 to 11; New York, 1 to 12, and Seattle but 1 baby death for 18 births—a rate twice as favorable as that for Pittsburgh.

Absence of complete and accurate data prevents comparisons of infant mortality for all of the larger urban centers of the United States.

Federal bookkeeping of babies did not begin until 1915. In that year the United States Bureau of the Census established the birth registration area, an area including only those States where at least 90 per cent of all births were completely recorded.

With the collection of statistics for the area it then became possible to keep a national ledger showing the net human gains of the first year of life. A complete count of births in the credit columns of communities balanced against the debits of infant deaths affords a cost accounting of the loss of young life.

The following table shows this cost, expressed in infant mortality rates, for a five-year period in the large cities in the birth registration area. Comparable figures are not available for great cities not in the area—notably Chicago, St. Louis, and New Orleans.

Infant mortality rates for cities in the birth registration area having a population of 250,000 or more in 1920; 1916 to 1920.

City.	Infant mortality rates. ¹				
	1920	1919	1918	1917	1916
Pittsburgh.....	110	114	139	120	115
Baltimore.....	104	98	149	118	122
Buffalo.....	104	110	121	104	114
Detroit.....	104	97	100	103	112
Boston.....	101	97	115	99	105
Indianapolis.....	92	80	93	95	(²)
Washington, D. C.....	90	85	112	97	106
Milwaukee.....	89	101	106	100	(²)
Philadelphia.....	89	91	124	108	105
Cleveland.....	86	95	98	109	(²)
New York.....	85	81	92	89	93
Rochester.....	85	74	92	84	86
Cincinnati.....	83	88	104	88	(²)
Los Angeles.....	71	67	(²)	(²)	(²)
San Francisco.....	67	62	(²)	(²)	(²)
Minneapolis.....	65	65	73	71	82
Portland, Oreg.....	60	69	(²)	(²)	(²)
Seattle.....	56	55	61	61	(²)

¹ Rates for 1916 to 1919 from U. S. Bureau of the Census, Birth Statistics; for 1920, from city departments of health.

² Added to registration area at a later date.

The chart on page 7 shows the trend of infant mortality in the nine large cities which have been in the birth registration area since it was established in 1915.

The Pittsburgh line indicates a markedly higher rate than that for the other eight cities. Fluctuations of its rate show a decline after the high peak in 1918, the year of the influenza epidemic, but no improvement for the five-year period. The rate had receded in 1920 only to the point from which it began to rise in 1915. Washington, Philadelphia, and New York show the most satisfactory progress toward a reduction of rates. Although the decrease for Minneapolis is somewhat less than for these cities, the Minnesota city began with a much more favorable position.

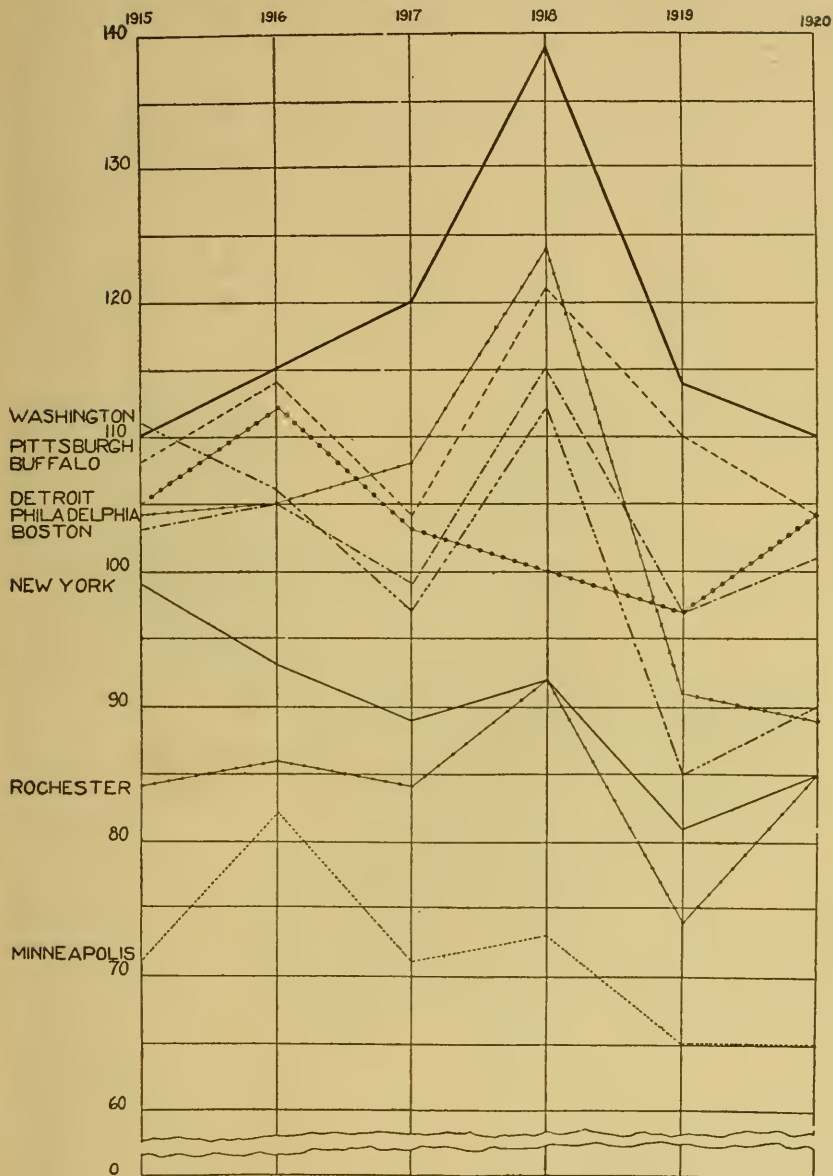
An analysis of the death certificates of infants under one year of age who died in Pittsburgh in 1920 has been made by the Children's Bureau in order to present such facts concerning the city's infant mortality in that year as are obtainable from official records.

Data concerning the age at death, cause of death, color, and nativity of mother and the ward of residence were copied from the original files of registered deaths kept by the State of Pennsylvania. The count of registered births used to compute infant mortality rates was secured from the Pittsburgh Department of Public Health.

BIRTH REGISTRATION IN PITTSBURGH.

The validity of the city's infant death rate per thousand births depends upon the extent to which Pittsburgh physicians, midwives, or parents reported the births of babies. Reporting of deaths is ad-

TREND OF INFANT MORTALITY IN NINE CITIES.



Infant mortality rates, 1915 to 1920, for nine large cities in the birth registration area since 1915.

mittedly more complete. Therefore, if a considerable number of births occurring in Pittsburgh in 1920 were not registered, the infant mortality rate is overstated.

Birth registration in Pittsburgh is under State control. Pennsylvania has had a good registration law since 1905. When the law went into effect in 1906, birth registration in Pittsburgh was incomplete. Prosecutions for failures to report births under the new law were so effective that the number of registered births in Pittsburgh in 1907 was increased by 68 per cent in 1908.

In 1915 the registration of births in Pennsylvania was accepted as up to the standard by the United States Bureau of the Census.

Any laxity in reporting births in Pittsburgh may have been due in part to the fact that in 1920 local registration of births and deaths was still being paid for by the fee system.

Payment to the local registrar was made under a section of the law providing that in cities of the first and second class where the registrar, appointed by the State commissioner of health, is furnished by the city with suitable office room for carrying on his duties as registrar, he shall be paid but 10 cents for each birth and death registered.

For a city the size of Pittsburgh, such payment is not sufficient to provide for an adequate registration office, which should give valuable service in the matter of checking birth registration and reporting negligent physicians and midwives.

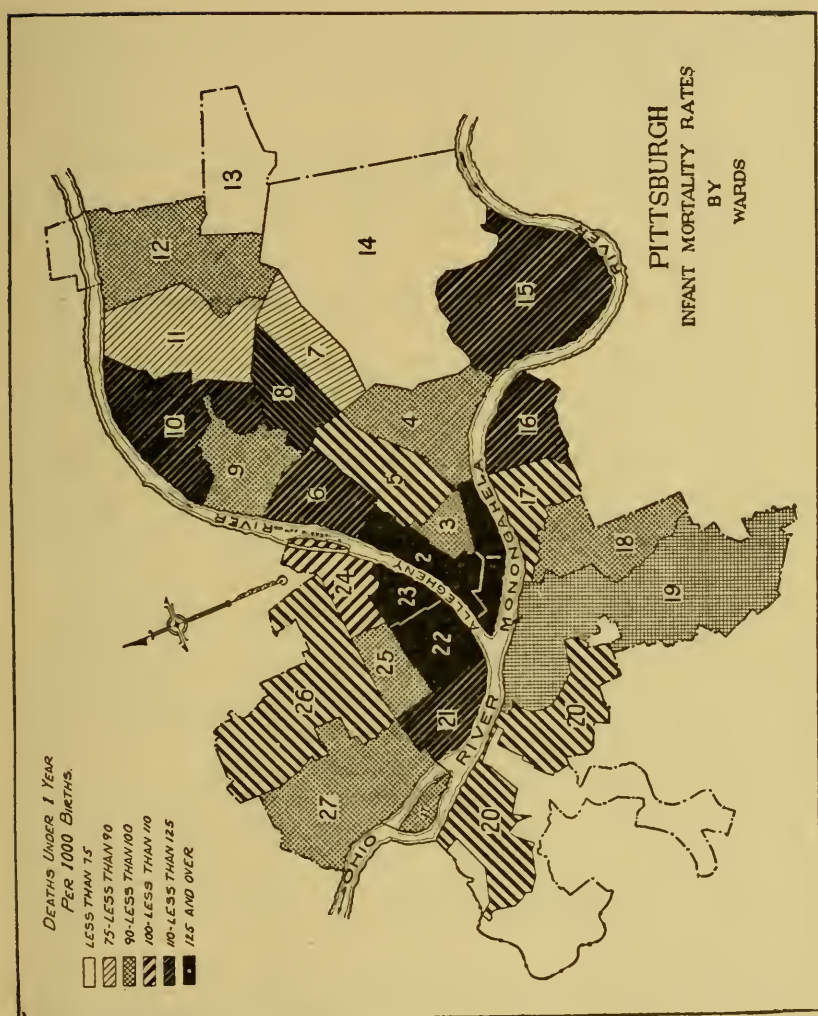
An act providing for more adequate compensation for registration in cities of the first and second class was passed by the State legislature in 1921.

A study of birth rates does not offer evidence which can be regarded as conclusive that registration is less complete in Pittsburgh than in other cities. Pittsburgh maintained a relatively high birth rate for the period from 1915 to 1919, as is shown by the following comparison of its birth rates per 1,000 population with those for the entire birth registration area:

Area.	1915	1916	1917	1918	1919
Pittsburgh ¹	28.6	28.9	28.8	27.4	24.8
Birth registration area ¹	25.1	25.0	24.7	24.6	22.3

¹ U. S. Bureau of the Census, Birth Statistics, 1919, p. 8.

While the birth rate for the city decreased from 28.6 in 1915 to 24.8 in 1919, a difference of 3.8, the decline was in accordance with a Nation-wide falling birth rate. Pittsburgh's birth rate in 1919 was still above that for 14 of the 17 other large cities in the registration area, including Baltimore, Philadelphia, and New York, all with large numbers of foreign born.



In 1920, when the recent census figures for the population of Pittsburgh made it possible to compute a rate on actual rather than estimated population, the birth rate was 25.

ANALYSIS OF INFANT DEATH CERTIFICATES.

The number of registered live births as reported by the Pittsburgh Department of Public Health and used in this study was 14,694. In addition, there were 814 stillbirths registered, making a total of 15,508 births for the city.

The infant death certificates, transcripts of which were secured by the Children's Bureau, numbered 1,626—seven more than reported by the city department of health. On this basis the infant mortality rate was 110.7 instead of 110.2, the rate announced by the department of health.

Of the 1,626 deaths, 185 were nonresident cases; for one, a foundling, residence was not reported. Nonresident babies who died in Pittsburgh came for the most part from homes in the large metropolitan area surrounding the city. The use this area makes of the city's hospital facilities affects the infant mortality rate, but the rates of all large cities which furnish hospital service to adjacent districts are similarly affected. The infant death rate for Pittsburgh, exclusive of nonresident births and deaths under 1 year, was 105 instead of 110.7.

WARD DISTRIBUTION OF INFANT DEATHS.

The distribution of the 1,440 deaths of infants whose homes were in Pittsburgh is shown on the map on page 12. Each dot represents an infant death in the ward and location designated. Deaths in hospitals were allocated to the ward of residence.

Thickly clustered dots in any ward do not necessarily indicate the most unfavorable conditions, since wards with densely populated areas may have a larger number of deaths but a smaller proportion in relation to the number of births. Six wards had higher rates than that for the fifteenth ward, where the greatest number of deaths (94) occurred.

Therefore the map on page 9, showing infant mortality rates by wards, must be considered in connection with the spot map.

This map shows that while the city rate of 110.7 represents a general level for the city, baby death rates for some sections of the city are much higher and for other sections much lower.

In the twenty-second ward, with an infant mortality rate of 157, a baby's death hazard was more than twice that of one born in the fourteenth ward with a rate of 64.

The rates for the 27 wards of Pittsburgh are given in the following table:

Infant mortality rates by ward of residence; Pittsburgh, 1920.

Ward.	Infant mortality rate.	Ward.	Infant mortality rate.
Rates more than 125:		Rates 90 to 100:	
Twenty-second.....	157	Eighteenth.....	97
First.....	156	Ninth.....	96
Second.....	143	Twenty-fifth.....	96
Twenty-third.....	138	Nineteenth.....	95
Rates 100 to 125:		Third.....	94
Sixth.....	121	Twelfth.....	93
Twenty-first.....	120	Twenty-seventh.....	91
Fifteenth.....	119	Fourth.....	90
Tenth.....	118	Rates less than 90:	
Sixteenth.....	113	Eleventh.....	89
Eighth.....	112	Seventh.....	79
Seventeenth.....	109	Thirteenth.....	70
Fifth.....	105	Fourteenth.....	64
Twenty-sixth.....	102		
Twentieth.....	102		
Twenty-fourth.....	100		

That the ward of residence was not in all cases accurately stated by the persons supplying the information for the death certificates was an interesting fact brought out by the analysis.

For the purpose of locating the deaths accurately on the spot map, in accordance with the addresses given on the death certificates, it was necessary to make a correction of the ward of residence stated on 75 certificates.

The wards in black on the shaded map focus attention on the areas of Pittsburgh, where the hazards to young life are the greatest.

The four black wards are river wards in the heart of the city.

The twenty-second ward, with a rate of 157, the highest for the city, and the twenty-third ward, with a rate of 138, are adjoining areas on the north side of Pittsburgh, bordering the Allegheny River. The business district of the former city of Allegheny is within the confines of these two wards. A considerable portion of the areas of both wards, therefore, is occupied by business property.

In the twenty-second ward the residential fringe circling the manufacturing and mercantile territory is known as a rooming-house district. The twenty-third ward is one of the most densely populated neighborhoods of the entire city.

The first ward, with an infant mortality rate of 156, is a section teeming with mercantile houses, mills, and factories, and the second ward, with a rate of 143, contains the city's largest center of wholesale and retail trade.

INFANT DEATHS IN PITTSBURGH-1910

EACH DOT REPRESENTS ONE INFANT DEATH





The dots, representing infant deaths in the second ward, string for the most part along Penn Avenue and Mulberry Way. More than half the babies who died in this ward were from homes on those two thoroughfares.

Wards with somewhat lower mortality rates, but whose infant losses varied from 112 to 121 per 1,000 births, were the sixth, tenth, and eighth, the twenty-first on the north side and the fifteenth and sixteenth on the south side.

A significant rate was that for the third ward. This ward is a triangle, two sides of which abut the black area on the shaded map. In many respects it is not dissimilar in character to those wards which were the least safe for babies. It has a large foreign element, and in density of population and consequent congestion it resembles the twenty-third ward. Yet its baby death rate was but 94, compared to 147 for the four black wards combined. The map on page 21 indicates a relationship between infant-welfare work and the favorable rate for the third ward.

Located in the ward were two free maternity clinics, two city milk stations, a substation of the Public Health Nursing Association, and the only well-baby clinic in Pittsburgh in 1920, which was maintained by the Irene Kaufmann Settlement. In addition, the ward had had the advantage of 19 years of neighborhood nursing service supplied by the Kaufmann Settlement.

The rate of 89 for the eleventh ward was identical with that for the urban part of the birth-registration area in 1919. Wards with more favorable rates than this were the seventh, thirteenth, and fourteenth. The most favorable rate for the city was that of 64 for the fourteenth ward, a high-class residential section.

FOREIGN MOTHERS IN PITTSBURGH.

The proportion of the foreign-born white in Pittsburgh in 1920 is fixed at about one-fifth of the total population by preliminary figures of the United States Bureau of the Census. Yet more than one-third of the resident births in Pittsburgh for that year were to foreign-born white mothers.

Considering the white resident group, the infant mortality rate for babies of foreign mothers was 110, compared to that of 95 for babies of native mothers.

The findings in this respect for Pittsburgh are in agreement with general findings for the country.

That the babies whose mothers come from other countries have less chance to survive than those whose mothers are born in the United States is shown by the infant mortality rates for white children given for the entire birth registration area in 1919—93 for the foreign group and 78 for the native group.

Studies of the Children's Bureau in eight cities also indicate higher rates for the foreign born but wide variations for different racial groups. Thus for the babies of Jewish mothers, included in these studies, the infant mortality rate was but 54 while for the babies of Slavic mothers the rate was 159.

From material available for this study, such racial influences reflected in infant mortality rates can not be shown, but comparisons must be limited to a classification by country of birth.

A distribution of the foreign population of Pittsburgh in 1920, by country of birth, shows that nearly one-fifth came from what was Austria-Hungary. The next largest groups were from Russia, Germany, Poland, and Italy, each of which contributed about 13 per cent of the total foreign element. About 12 per cent were Irish and 10 per cent came from England, Scotland, and Wales combined.¹

A classification of resident babies, by mother's nativity, affords the following comparisons among these predominant groups:

Mothers from Italy were the most fortunate in bringing their babies safely through the first year. The infant mortality rate for babies of Italian mothers was 92, lower than that of 95, the native rate.

Rates for all other of the predominant foreign groups were noticeably higher than that for babies of native mothers.

Rates higher than are usual among the children of mothers coming from lands where English is spoken were found for Pittsburgh. The rate for babies of mothers from England, Scotland, and Wales was 140 and for babies of Irish mothers, 129.

Owing to the shift in boundaries, due to the war, the returns for mothers stated as coming from Austria-Hungary, Russia, and Poland are not clear-cut, nor do data permit of comparisons between Jewish, Polish, and other racial groups common to the three countries. For the babies of mothers from Austria-Hungary, the largest foreign group, the rate was 128.

Since 1910, the Negro population of Pittsburgh has increased by 47 per cent, according to 1920 returns of the Federal census, constituting 6 per cent of the total population in 1920. The death rate for Negro infants was 164 per 1,000 births.

DEATHS IN EARLY INFANCY.

The first few days and weeks of life constitute the most perilous period of infancy.

Nearly one-half of the babies in Pittsburgh who failed to survive their first year succumbed before they were a month old. The mortality under 1 month of age was 48 per 1,000 births.

¹ Preliminary figures, U. S. Bureau of the Census.

That such deaths are largely preventable has been clearly demonstrated. What can be accomplished by good prenatal care in saving babies at and shortly after birth is shown from the following experiences in Cleveland, Boston, and New York.

A study of records of 442 mothers receiving prenatal care during 1919 in one district of Cleveland, made by the hospital and health survey, showed that it was possible to reduce the mortality rate among babies under 1 month of age to 24.8 per 1,000 births as compared with the city rate of 31.4 per 1,000 births. This was in a district where the baby death rate was found to be much higher than the rate for the city as a whole.

In the city of Boston in 1920 infant mortality under two weeks of age was 37 per 1,000 births. For births to 4,036 mothers who were given prenatal care by the district nursing association, it was 13 per 1,000—a marked reduction.

From figures of the New York Maternity Center Association it is known that among 4,496 women who were supervised through pregnancy and for a month after the baby was born, the proportion of babies dying before the end of the first month was only 42 per cent of that of the city as a whole. These mothers lived under the low-income handicap; yet with proper care they were able in a large number of cases to bring healthy babies to birth.

CAUSES OF DEATH.

The deaths in early infancy are closely identified with those occurring from natal and prenatal causes. In this group are assembled deaths from prematurity, congenital debility, injuries at birth, malformations and syphilis—causes for the most part directly connected with the care and condition of the mother.

That the well-being of the mother is the key to the safety of the child is shown by the highest shaft on the chart on page 17.

The number of babies in Pittsburgh deprived of even a fair start in life in 1920 was 704, 43 per cent of all the babies who died in 1920.

The most effective method by which the community can cut the high ratio of these losses is by providing care and instruction for the mother before her baby's birth and skilled attendance during her confinement.

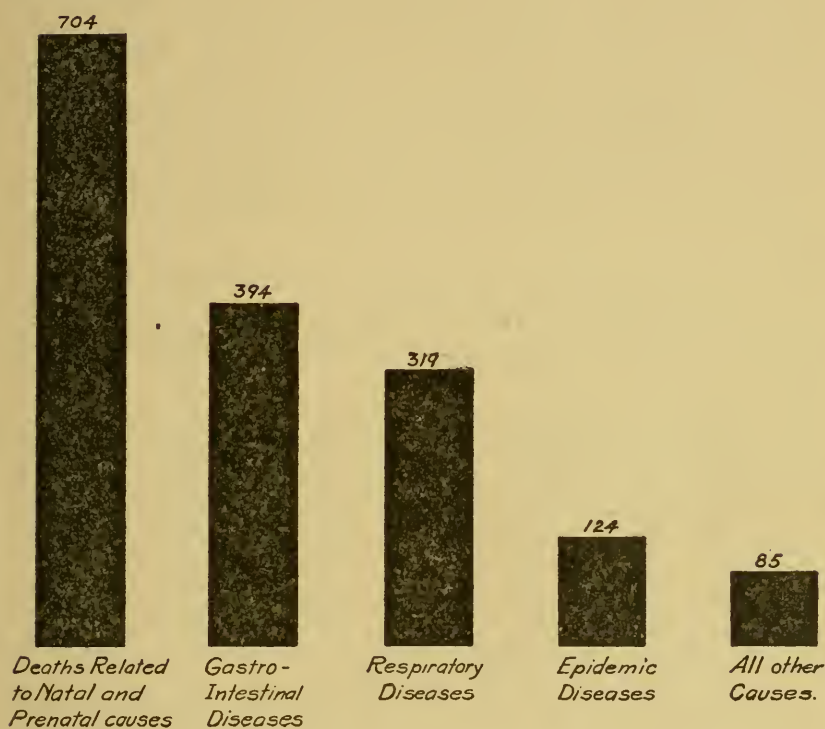
The second shaft on the chart indicates the group of deaths caused from gastrointestinal diseases, deaths occurring for the most part in the heat of summer. This column can be cut by instructions to mothers in the proper care and feeding of babies, and by adequate civic supervision to insure purity and proper handling of milk supplies.

Respiratory diseases claimed the third largest group of babies. Bronchitis and pneumonia, combined in this group, take their largest

DEATHS UNDER ONE YEAR OF AGE GROUPED BY CAUSES

PITTSBURGH

1920



toll of young life in congested districts. Crowded homes and lack of fresh air leave babies easy prey to these diseases.

Of the 124 deaths from epidemic diseases represented in the fourth shaft of the cause chart, whooping cough, influenza, and measles were the chief causes.

The effect of the seasons with relation to deaths from gastrointestinal and respiratory diseases is shown by the summer and winter peaks of baby deaths illustrated on the chart on page 19.

The summer peak of deaths from gastrointestinal diseases instances the hazard of hot weather to baby life. Deaths from those causes showed marked increases in June and July, culminating in August and September, when 137 deaths were recorded.

Infant deaths from respiratory causes reached the highest peak in February, when 73 babies were victims of bronchitis and pneumonia.

That the immediate causes of death thus analyzed have their sources in those more remote and infinitely complex factors touching the social, economic, and civic conditions in Pittsburgh can be inferred.

The subject of infant mortality in its various aspects has had a large share of the attention of the Children's Bureau during the nine years of its existence. Careful investigations which have included surveys of civic conditions and inquiries into family life in communities of diverse types have furnished certain unvarying conclusions.

Low wages, poor housing, insanitary surroundings, ignorance, illiteracy, the lack of nursing and medical care were everywhere coincident with high infant mortality rates.

The housing problem Pittsburgh shares in common with all large cities, where building has not kept pace with the growth in population. The population of Pittsburgh in 1920 was 588,343, an increase of 10 per cent over that of 1910, and in 1910 the lack of adequate housing provisions for Pittsburgh was a matter of serious concern.

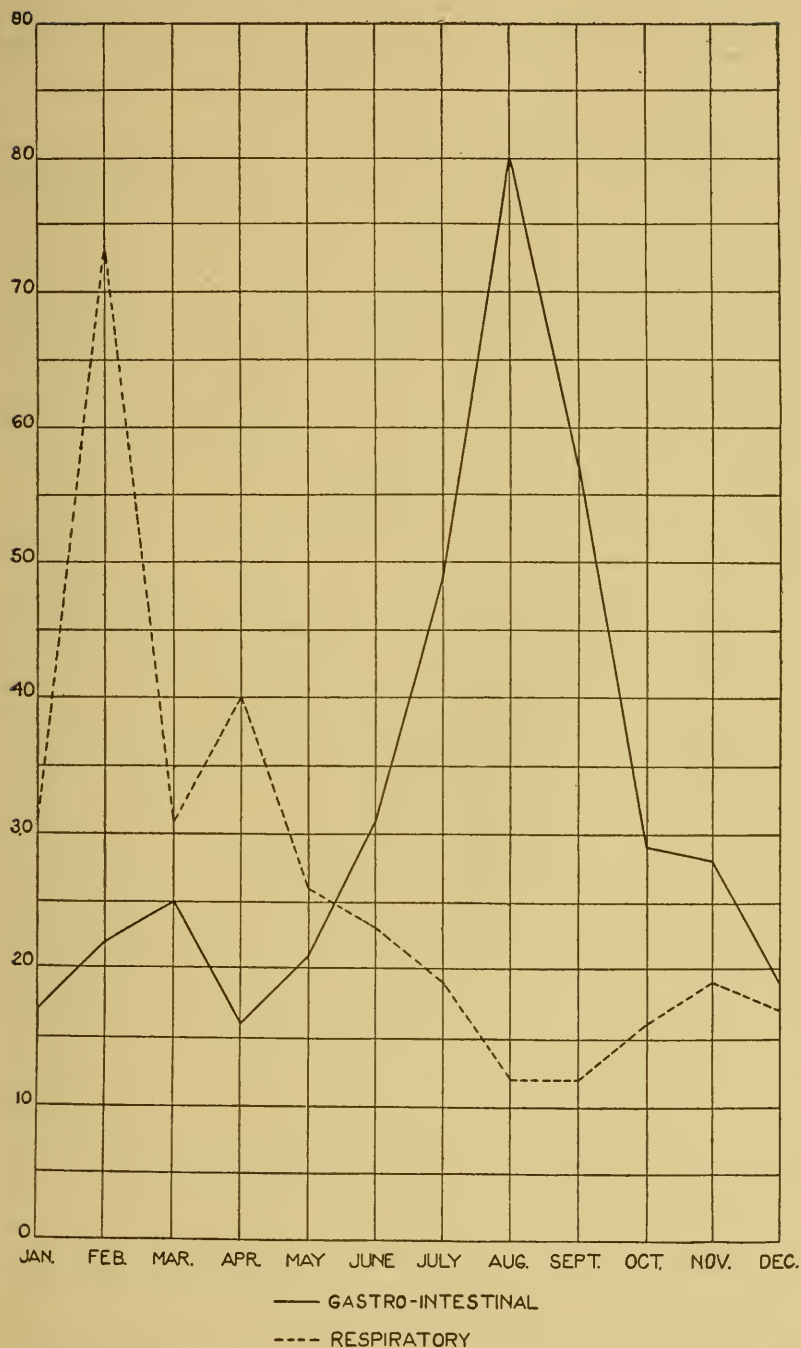
That the waste of infant life due to ignorance and neglect can be cut by effective preventive measures has been demonstrated by experiences in this and other countries. Much has been accomplished by providing maternity or prenatal centers, baby health centers, and home service by the public health nurse.

INFANT-WELFARE WORK IN PITTSBURGH.

The specialized equipment for such service available in Pittsburgh in 1920 is shown on the map on page 21.

The city's contribution to this service is indicated by the milk stations which are operated by the bureau of child welfare, Pittsburgh Department of Public Health.

SUMMER AND WINTER PEAKS OF INFANT DEATHS.



Number of deaths from gastro-intestinal and respiratory diseases by calendar months.

The bureau had a permanent staff of 35 physicians, 18 nurses, and 14 assistants in 1920, but the major part of the work during ten months of the year was devoted to school medical inspections. Part-time service by ten physicians and by the nursing staff was given to the infant-welfare work conducted by the bureau.

The bureau operated 14 permanent milk stations during 1920 and six additional stations during the summer when the schools were closed. The stations were usually located at public-school buildings or settlement houses and were kept open one hour a day during the winter and each morning during the summer.

Milk was given free or below cost for infants under 2 years of age, and in exceptional cases for nursing mothers and older children in need of nourishment. Weekly visits to the station were made by mother and child. A physician examined each baby and gave the mother written instructions for milk modification. Nurses visited the mothers at their homes to demonstrate methods of milk modification and to advise about the care of the baby.

More than 32,000 visits were made to the stations in 1920 by the 1,485 patrons registered.

The city's milk bill for this service was more than \$21,500 in 1920. Of this about \$4,400 was returned by patrons who paid in part for the milk received, making a net expenditure of about \$17,000 for milk.

In addition to medical inspections in the schools and the maintenance of milk stations, the bureau of child welfare was in charge of the supervision of midwives.

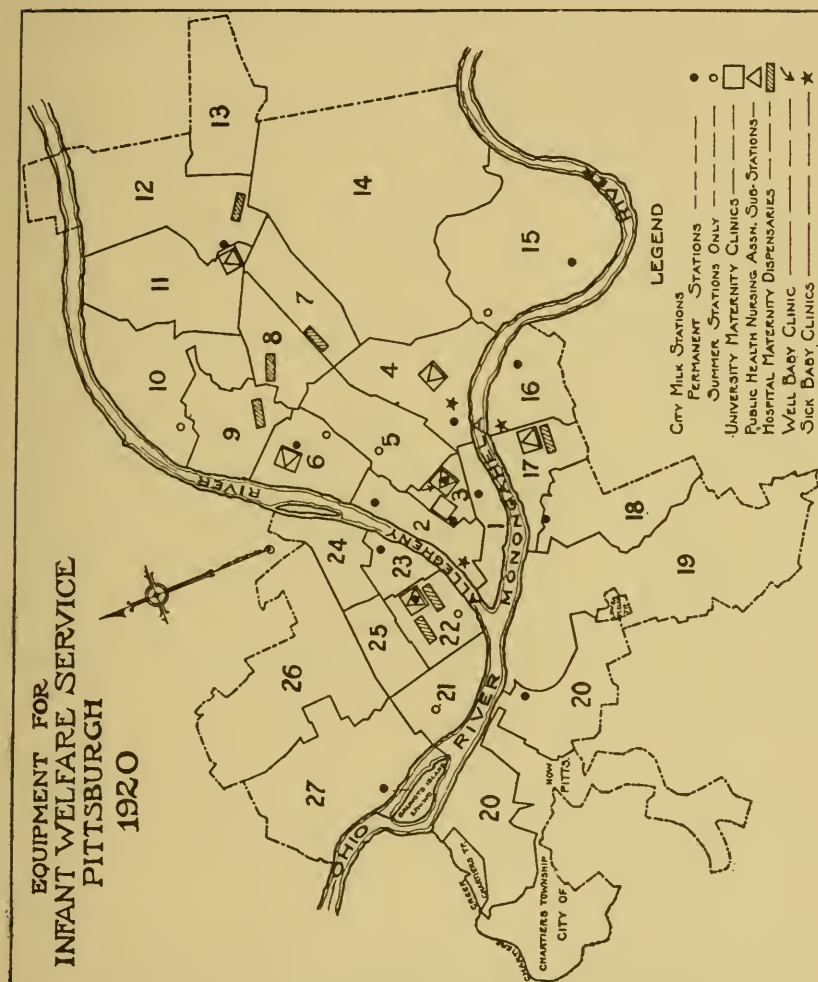
The practice of midwifery in Pittsburgh is controlled by the State, but examining, licensing, and inspection are carried on through the bureau. Nurses of the bureau who were paid by the State for inspections visited the homes and filled out schedules of information concerning all births attended by midwives. In 1920, the bureau had supervision over 78 licensed midwives who reported 2,809 births.

The Public Health Nursing Association is the only private organization in Pittsburgh engaged in public health nursing.

The association was not organized until July 1, 1919; has since united all the independent organizations engaged in visiting nursing.

Although its service is general in character, it has recognized the need for prenatal and infant care, and is emphasizing that feature of its program. The service given in 1920 consisted of home visits, to advise the expectant mother, nursing care for the mother and newborn child, and instructions in infant hygiene and home cleanliness.

This service was extended to all mothers referred to the association by various agencies, to all patients of the university maternity clinics,



to patients coming under private physicians, upon request, and to the policyholders of a large life insurance company.

The association received pay for its work for the insurance company, but was otherwise maintained by private subscription. Its expenditures in 1920 were about \$70,000.

All instructive service to mothers, both before and after the baby's birth, was given free. Nursing service was free to those unable to pay. To others the cost of the service was graduated in accordance with each family's financial resources.

The association had an average of 42 field nurses on its staff in 1920 for service in Allegheny County. Since all the nurses received general assignments, the exact amount of time given to infant and maternal service can not be measured, but it is estimated that at least one-third of the cases handled can be so classed. About 3,000 mothers came under the care of the association from July 1, 1919, to December 31, 1920.

The map on page 21 shows the location of the six substations of the association in 1920, from which it carried on its prenatal service and infant hygiene work.

The University of Pittsburgh maintained seven free maternity clinics in 1920. The location of these are shown on the map on page 21. The staff for this work was composed of a graduate physician, a nurse, and a social worker. Each dispensary was open one day a week. Prenatal service was given and the physician in charge attended all confinement cases in the homes. Nursing care following the confinement was given by the public health nursing association, with which the university clinics cooperate.

Medical students at the university secure their obstetrical training through the work of these dispensaries, but each delivery is under the direction of a trained obstetrician.

The community and settlement houses at which the university clinics and the substations of the Public Health Nursing Association were located gave generous cooperation to the work and contributed to the equipment by supplying free quarters for the services.

Out-patient maternity service was supplied in 1920 by seven Pittsburgh hospitals, which maintained dispensaries for patients to be confined in the hospitals. Special clinics for infants were maintained by two hospitals, and a well-baby clinic was operated by the Irene Kaufmann Settlement.

The Pittsburgh and Allegheny Milk and Ice Association operated a baby clinic and distributed milk and ice free to needy families having young children. Milk was delivered to the homes of 463 families in 1920. The expenditures of the association, which is wholly financed by private subscriptions, were \$23,000 in 1920. More than \$17,000 of this amount was expended for milk.

CONCLUSIONS.

The need for an amplification of such services in Pittsburgh is evidenced by the infant mortality rate of 110 in 1920.

Experts have estimated that a city should have one public health nurse for every 2,000 of population in order to protect adequately the health of its mothers and children.² On this basis Pittsburgh, with a population of 588,343 in 1920, needed 294 public health nurses, a force far in excess of that provided.

It must be noted, too, that the public health nursing association had rounded out only its first year of existence on July 1, 1920, so that the results of its prenatal and infant-welfare work could not be fully measured for 1920.

A further standard for public protection of maternity and infancy requires maternity or prenatal centers sufficient to provide for all cases not receiving prenatal supervision from private physicians.² An example of the inadequacy of this service in Pittsburgh is illustrated by the map on page 21, which shows that only one ward in the entire south-side section of the city had prenatal clinic service in 1920.

To comply with minimum standards set up, additional health centers to give health instruction under medical supervision for all infants not under the care of a private physician also are needed.

In the city department of health the staff of the bureau of child welfare was used largely for medical inspections in the schools. An increased force which would permit of a staff of physicians and nurses giving full-time service to infant-welfare work is needed, and has been requested by the superintendent of the bureau.

Figures of the bureau show that for the maintenance of milk stations by the city the amount spent for milk was \$21,798 and for salaries \$14,578.

An adjustment that would permit of a larger proportion of expenditures for salaries to provide instruction for the mothers and less for milk would be in accordance with the practice of a number of cities where work for the reduction of infant mortality has been effective.

Speaking of the reduction of infant mortality in New York City, Dr. S. Josephine Baker, director bureau of child hygiene, New York City Department of Health, says:

The evolution of the infants' milk station is essential. Pure milk, however desirable, will never alone solve the infant mortality problem. Without overlooking the value of pure milk, I believe this problem must primarily be solved by educational measures. In other words, the solution of the problem of infant

² Minimum Standards for Child Welfare, adopted by the Washington and Regional Conferences on Child Welfare, 1919, Children's Bureau Publication No. 62, Washington, 1919.

mortality is 20 per cent pure milk and 80 per cent training of the mothers. The infants' milk stations will serve their wider usefulness when they become educational centers for prenatal instruction and the encouragement of breast feeding and teaching better hygiene, with the mother instructed to buy the proper grade of milk at a place most convenient to her home.³

Only by complete and prompt birth registration can Pittsburgh measure the extent of its infant mortality and locate the areas where the problem is most pressing.

A campaign for better birth registration would awaken the public to the importance of complete local records. Many cities have enlisted the interest of parents by sending them copies of their babies' birth certificates.

Physicians, midwives, and others who fail to report births as required by law should be vigorously prosecuted.

The large number of infant deaths occurring in the first weeks of life, and the high shaft representing the deaths from natal and prenatal causes indicate that the preventive measures outlined are needed to reduce infant mortality in Pittsburgh.

A study based on an analysis of official records is too limited to afford conclusions in regard to all factors known to be linked with excessive infant losses.

While a survey alone could determine the extent to which economic conditions, poor housing, and poor sanitation have been reflected in high infant death rates for Pittsburgh, it is known that only by community responsibility for decent living conditions can every child be given a fair chance.

³ Transactions of the International Congress of Hygiene and Demography, 1912, vol. 3, p. 141.



